

Exam.Code:0927

Sub. Code: 6899

1078

B.E. (Electronics and Communication Engineering)

Third Semester

EC-303: Microprocessor and Applications

Time allowed: 3 Hours

Max. Marks: 50

**NOTE:** Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Section.

x-x-x

1. a) What is the function of the ALE signal? 10 X 1 = 10  
 b) If an output and input port can have the same 8-bit address, how does the 8085 differentiate between the ports?  
 c) Give an example of register addressing.  
 d) How is the memory read control signal generated?  
 e) What is the function of the DCX SP instruction?  
 f) Give an example of an instruction which does not affect the flags.  
 g) How is an instruction cycle different from a machine cycle?  
 h) Which instruction defines the beginning of the stack?  
 i) Among A/D and D/A converters, which serve as input and which serve as output devices?  
 j) List the operating modes of 8255A?

## SECTION-A

2. a) What are the different operations that can be performed with data in a microprocessor? What units are required for these operations? Explain with the help of block diagram.  
 b) With the help of timing diagram, explain the opcode fetch machine cycle. 2 X 5 = 10
3. a) Write an assembly language program to find out the largest number from the given array of numbers.  
 b) Interface an 8-key input port with the 8085 such that it has address FAH: 2 X 5 = 10
4. a) A system is designed to monitor the temperature of a furnace. Temperature readings are recorded in 16 bits and stored in memory locations starting at XX60H. The high-order byte is stored first and the low-order byte is stored in the next consecutive memory location. However the high-order byte of all the temperature readings is constant. Write a program to transfer low-order readings to consecutive memory locations starting at XX80H and discard the high-order bytes.  
 b) A bar code scanner scans the boxes being shipped from the loading dock and records all the codes in computer memory. The end of the data is indicated by the byte 00. The code 10100011(A3H) is assigned to 19" television sets. Write a program to count the number of 19" television sets that were shipped from the following data set.  
 Data(H): FA, 67, A3, B8, A3, A3, FA, 00 2 X 5 = 10

P.T.O.

SECTION-B

5. a) Write a delay routine for 10ms using the instructions of 8085 having clock period of 3MHz.  
b) Write a program to meet the following specs:  
i) Initialize the stack pointer register at XX99H.  
ii) Clear the memory locations starting from XX90H to XX9FH  
iii) Load register pairs B, D, and H with data 0237H, 1242H and 4087H respectively  
iv) Push the contents of the register pairs B, D and H on the stack.  $2 \times 5 = 10$
6. a) Interpret the accumulator bit pattern for the SIM instruction. What are RST 7.5, 6.5 and 5.5?  
b) Explain and illustrate the mode set register format of 8257.  $2 \times 5 = 10$
7. a) Interface an 8-bit A/D converter with the 8085 using interrupt. Give the subroutine instructions to initiate the conversion and to read output data.  
b) What is direct memory access? What is it used for? Describe briefly any programmable DMA controller.  $2 \times 5 = 10$

x-x-x